UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/600,079	06/20/2003	Elliot N. Linzer	03-0578 1496.00309	6852

24319 7590 04/18/2007

LSI LOGIC CORPORATION
1621 BARBER LANE
MS: D-106
MILPITAS, CA 95035

EXAMINER	
RAO, ANAND SHASHIKANT	
ART UNIT	**PAPER NUMBER**
2621	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/18/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/600,079	LINZER, ELLIOT N.	
	Examiner	Art Unit	
	Andy S. Rao	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10/13/06, 12/14/06, and 3/28/07*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see Pre-Appeal Brief Request, filed on 12/14/06, with respect to claims 1-25 and with request to the Interview Summary of 3/28/07 regarding the entry of the previously excluded amendment of 10/13/06 have been fully considered and are persuasive. The rejection as set forth in the Office Action of 2/12/07 is vacated, and prosecution is reopened with respected to the claims as presented in the amendment of 10/13/06.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jeon in view of Kato et al., (hereinafter referred to as "Kato").

Jeon discloses a method for representing a motion for two blocks (Jeon: paragraph [0014], lines 1-9), comprising the steps of: exchanging a particular value of a plurality of values, each of said values defining which of said two blocks use which of a plurality of motion vectors (Jeon: paragraph [0023], lines 1-12) based upon one of a plurality of prediction types (Jeon: paragraph [0005], lines 1-6), wherein said prediction types include (i) a first prediction type for a first reference picture list (Jeon: paragraph [0007], lines 1-10) and (ii) a second prediction type for a second reference picture list (Jeon: paragraph [0007], lines 11-15); and representing said

motion for said two blocks with a group comprising said particular value and up to all of said motion vectors (Jeon: paragraph [0055], lines 1-12), wherein said two blocks use a macroblock adaptive field/frame coding (Jeon: paragraph [0087], lines 1-6), as in claim 1. However, Jeon fails disclose exchanging a particular value with a memory wherein said exchanging includes at least one of reading to from said memory and writing to said memory to implement steps of the method, as in the claim. Kato discloses a method for representing a motion for two blocks (Kato: column 34, lines 65-67; column 35, lines 1-20) by using a memory and associated circuitry (Kato: column 23, lines 40-50) in order to perform the motion vector calculations for predictions (Kato: column 1, lines 50-65). Accordingly, given this teaching, it would have obvious for one of ordinary skill in the art to incorporate the Kato memory and associated circuitry to implement the exchanging steps in order to perform the Jeon calculations for predictions (Jeon: paragraph [0053], lines 10-13). The Jeon method, now implemented in the Kato memory and associated circuitry for implementing the exchanging step, has all of features of claim 1.

Regarding claim 2, the Jeon method, now implemented in the Kato memory and associated circuitry for implementing the exchanging step, has wherein said group comprises a plurality of bits that is less than a maximum number of bits capable of representing each unique possibility for said motion vectors (Jeon: paragraph [0055], lines 1-13), as in the claim.

Regarding claims 3-4, the Jeon method, now implemented in the Kato memory and associated circuitry for implementing the exchanging step, has wherein a first plurality of said motion vectors for a first of said two blocks are equal to a second plurality of said motion vectors for a second of said two blocks (Jeon: paragraph [0101], lines 1-8), as in the claims.

Regarding claims 5-6, the Jeon method, now implemented in the Kato memory and associated circuitry for implementing the exchanging step, has wherein said group includes at most two of said motion vectors (Jeon: paragraphs [0108-0109], lines 1-15), as in the claims.

Regarding claim 7, the Jeon method, now implemented in the Kato memory and associated circuitry for implementing the exchanging step, has wherein one of said values defines using none of said motion vectors (Jeon: paragraph [0096], lines 1-4).

Regarding claim 8, the Jeon method, now implemented in the Kato memory and associated circuitry for implementing the exchanging step, has further comprising the step of: using a list 0 prediction of said prediction types for said motion vectors, wherein each of said motion vectors is used for a different one of said two blocks (Jeon: paragraph [0100], lines 1-4), as in the claim.

Regarding claim 9, the Jeon method, now implemented in the Kato memory and associated circuitry for implementing the exchanging step, has using a list 1 prediction of said prediction types for said motion vectors, wherein each of said motion vectors is used for a different one of said two blocks (Jeon: paragraph [0100], lines 1-4), as in the claim.

Regarding claim 10, Jeon method, now implemented in the Kato memory and associated circuitry for implementing the exchanging step, has using a bidirectional prediction of said prediction types for said motion vectors, wherein each of said motion vectors is used for both of said two blocks (Jeon: paragraph [0006], lines 10-17), as in the claim.

Regarding claims 11-12, the Jeon method, now implemented in the Kato memory and associated circuitry for implementing the exchanging step, has wherein the method further generating said group with said particular value while above a predetermined standard level for a

bitstream (Jeon: paragraph [0033], lines 1-10); and generating said groups without said particular value while below said predetermined standard level for said bitstream (Jeon: paragraph [0055], lines 1-11), as in the claims.

Jeon discloses an apparatus (Jeon: paragraph [0055], lines 1-4), comprising: an element configured to exchange a particular value of a plurality of values, each of said values defining which of said two blocks use which of a plurality of motion vectors (Jeon: paragraph [0023], lines 1-12) based upon one of a plurality of prediction types (Jeon: paragraph [0005], lines 1-6), wherein said prediction types include (i) a first prediction type for a first reference picture list (Jeon: paragraph [0007], lines 1-10) and (ii) a second prediction type for a second reference picture list (Jeon: paragraph [0007], lines 11-15); and an element configured to represent said motion for said two blocks with a group comprising said particular value and up to all of said motion vectors (Jeon: paragraph [0055], lines 1-12), wherein said two blocks use a macroblock adaptive field/frame coding (Jeon: paragraph [0087], lines 1-6), as in claim 13. However, Jeon fails disclose exchanging a particular value with a memory and associated circuitry wherein said exchanging includes at least one of reading to from said memory and writing to said memory as a part of the apparatus, as in the claim. Kato discloses an apparatus for representing a motion for two blocks (Kato: figure 1) by using a memory and associated circuitry (Kato: column 23, lines 40-50) in order to perform the motion vector calculations for predictions (Kato: column 1, lines 50-65). Accordingly, given this teaching, it would have obvious for one of ordinary skill in the art to incorporate the Kato memory and associated circuitry into the Jeon apparatus to implement the exchanging steps in order to perform the Jeon calculations for predictions (Jeon: paragraph

[0053], lines 10-13). The Jeon apparatus now incorporating the Kato memory and associated circuitry for implementing the exchanging step, has all of features of claim 13.

Regarding claim 14, the Jeon apparatus now incorporating the Kato memory and associated circuitry for implementing the exchanging step, has wherein said group comprises a plurality of bits that is less than a maximum number of bits representing every unique possibility for said motion vectors (Jeon: paragraph [0055], lines 1-8), as in the claims.

Regarding claims 15-16, Jeon apparatus now incorporating the Kato memory and associated circuitry for implementing the exchanging step, has wheren said group includes at most two vectors (Jeon: paragraph [0048], lines 1-8), as in the claims.

Regarding claim 17, the Jeon apparatus now incorporating the Kato memory and associated circuitry for implementing the exchanging step, has a coding circuit configured to encode said particular value within a bitstream (Jeon: paragraph [0055], lines 1-6), as in the claim.

Regarding claim 18, the Jeon apparatus now incorporating the Kato memory and associated circuitry for implementing the exchanging step, has a decoder circuit configured to decode said particular value from a bitstream (Kato: figure 5), as in the claim.

Regarding claim 19, the Jeon apparatus now incorporating the Kato memory and associated circuitry for implementing the exchanging step, has wherein a first of said values defines using none of said motion vectors (Jeon: paragraph [0005], lines 4-7); a second of said values defines a first prediction type (Jeon: paragraph [0006], lines 1-3); a third of said values defines a second prediction type (Jeon: paragraph [0006], lines 4-7); a fourth of said values

defines a bidirectional prediction of said prediction types (Jeon: paragraph [0006], lines 8-14), as the claim.

Jeon discloses an apparatus (Jeon: paragraph [0055], lines 1-4), comprising: an element storing a group (Jeon: paragraph [0006], lines 1-5); an element exchanging a particular value of a plurality of values, each of said values defining which of said two blocks use which of a plurality of motion vectors (Jeon: paragraph [0023], lines 1-12) based upon one of a plurality of prediction types (Jeon: paragraph [0005], lines 1-6); an element representing said motion for said two blocks with a group comprising said particular value and up to all of said motion vectors (Jeon: paragraph [0055], lines 1-12), wherein said prediction types include (i) a first prediction type for a first reference picture list (Jeon: paragraph [0007], lines 1-10) and (ii) a second prediction type for a second reference picture list (Jeon: paragraph [0007], lines 11-15), as in claim 20. However, Jeon fails disclose the specific means for exchanging a particular value with a memory and associated circuitry wherein said exchanging includes at least one of reading to from said memory and writing to said memory as a part of the apparatus, as in the claim. Kato discloses an apparatus for representing a motion for two blocks (Kato: figure 1) by using a memory and associated circuitry (Kato: column 23, lines 40-50) in order to perform the motion vector calculations for predictions (Kato: column 1, lines 50-65). Accordingly, given this teaching, it would have obvious for one of ordinary skill in the art to incorporate the Kato memory and associated circuitry into the Jeon apparatus to implement the exchanging steps in order to perform the Jeon calculations for predictions (Jeon: paragraph [0053], lines 10-13). The Jeon apparatus now incorporating the Kato memory and associated circuitry for implementing the exchanging step, has all of features of claim 20.

Jeon discloses a method for representing a motion for two blocks (Jeon: paragraph [0014], lines 1-9), comprising the steps of: generating a representation of said motion for said two blocks, said representation having less than a maximum number of bits capable of representing each possible combination of four motion vectors for said two blocks (Jeon: paragraph [0055], lines 1-13), exchanging said representation (Jeon: paragraph [0023], lines 1-12) wherein said two blocks use a macroblock adaptive field/frame coding (Jeon: paragraph [0087], lines 1-6), as in claim 21. However, Jeon fails disclose exchanging said representation with a memory wherein said exchanging includes at least one of reading to from said memory and writing to said memory to implement steps of the method, as in the claim. Kato discloses a method for representing a motion for two blocks (Kato: column 34, lines 65-67; column 35, lines 1-20) by using a memory and associated circuitry (Kato: column 23, lines 40-50) in order to perform the motion vector calculations for predictions (Kato: column 1, lines 50-65). Accordingly, given this teaching, it would have obvious for one of ordinary skill in the art to incorporate the Kato memory and associated circuitry to implement the exchanging steps in order to perform the Jeon calculations for predictions (Jeon: paragraph [0053], lines 10-13). The Jeon method, now implemented in the Kato memory and associated circuitry for implementing the exchanging step, has all of features of claim 21.

Regarding claim 22, the Jeon method, now implemented in the Kato memory and associated circuitry for implementing the exchanging step, has wherein said representation comprises a binary representation (Jeon: paragraph [0006], lines 1-13), as in the claim.

Regarding claims 23-25, the Jeon method, now implemented in the Kato memory and associated circuitry for implementing the exchanging step, has wherein said representation is

configured to accommodate (i) a first number of possible vectors for a first of said motion vectors for a first block of said two blocks (Jeon: paragraph [0006], lines 1-4), (ii) a second number of possible vectors for a second of said motion vectors for said first block (Jeon: paragraph [0006], lines 5-7), (iii) a third number of possible vectors for a third of said motion vectors for a second block of said two blocks and (Jeon: paragraph [0006], lines 8-13) (iv) a fourth number of possible vectors for a fourth of said motion vectors for said second block (Jeon: paragraph [0005], lines 1-5), as in the claims.

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andy S. Rao whose telephone number is (571)-272-7337. The examiner can normally be reached on Monday-Friday 8 hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on (571)-272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Andy S. Rao
Primary Examiner
Art Unit 2621

asr
April 4, 2007